The Claims:

1. **(Original)** A method for decoding a received vector symbol which corresponds to a binary string having a plurality of bit positions, comprising:

    (a) performing a sphere search so as to obtain an initial set of candidate vectors including a most likely candidate vector; and

    (b) computing a log-likelihood ratio for each of said bit positions, wherein each said ratio is based on values of a cost function computed for at least some candidate vectors belonging to the initial set, and on values of the cost function for at least some further candidate vectors constructed by flipping one or more bits of the most likely candidate vector.

2. **(Previously Presented)** The method of claim 1, further comprising including in the initial set of candidate vectors at least one vector that has been excluded by the sphere search as lying outside a search radius.

3. **(Previously Presented)** The method of claim 1, wherein each of the at least some further candidate vectors is constructed by flipping precisely one bit of the most likely candidate vector.